Priming the Interpretation of Noun Compounds: Evidence against Relation-based Models

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Introduction

Interpreting relations between constituent parts is a core element of language comprehension. From the perspective of research on concepts, conceptual combination provides rich evidence for this, with everyday examples ranging from well-established noun compounds such as *computer chip* to relatively temporary novel combinations such as *castle tourist*; as listeners we are able to interpret combined concepts from all points along this continuum with ease.

Theoretical Background

Two theoretical models dominate the recent relevant literature. The most striking difference between the two approaches concerns the roles of head noun and modifier in online processing. Schema-based approaches (e.g. Murphy, 1990; Smith et al., 1988, Wisniewski, 1996) hold that combined concepts are interpreted by modifying the dimensions or attributes in the representation of the head noun. Gagné & Shoben (1997; Gagné, 2001) propose an alternative relation-based model known as the competition-among-relations-in-nominals (CARIN) theory, according to which conceptual combination involves assigning a thematic relation between the head noun and its modifier; this relational information is stored with the modifier concept.

Experiments

We report two experiments that examined the effects of semantic priming on the interpretation of ambiguous noun-noun compounds to investigate whether modifier concepts are associated with relational information as the CARIN model proposed. Using a picture verification (forced choice) paradigm, participants were presented with depictions of ambiguous novel combinations such as *frog hat* (where the possible interpretations were restricted by the picture alternatives to 'a frog wearing a hat' and 'a hat with pictures of frogs on it'). The primes in the first experiment were in four conditions (1a-d), crossing lexical overlap (N1- versus N2-repeated) with semantic relation (POSSESSOR versus DESCRIPTIVE).

Results and Discussion

Results showed a reliable main effect of semantic relation: Relation priming occurred regardless of whether N1 or N2 was repeated between prime and target; $p<.01$. This goes against the prediction made by the CARIN model, according to which relation availability is uniquely associated with the modifier (N1) and therefore unaffected by the head noun (Gagné & Shoben, 1997; Gagné, 2001). A second experiment investigated the effect of a zero-lexical-overlap condition. Results showed a significant priming effect even without repetition of either noun; $p<.05$. Our results therefore argue against the CARIN model, but are compatible with schema-based theories of conceptual combination.

1a. *frog*$_{[POSS]}$ *boat*
1b. *frog*$_{[DES]}$ *boat*
1c. *baby*$_{[POSS]}$ *hat*
1d. *baby*$_{[DES]}$ *hat*

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